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Docket No. GL-6115DIV

# IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Shiping WANG et al.

Confirmation No.: 6

6669

Serial No.:

10/788,954

Group Art Unit:

1772

Filed:

March 1, 2004

Examiner:

Walter Augenbaugh

For:

POLYISOPRENE ARTICLES AND PROCESS FOR MAKING SAME

Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

# **DECLARATION OF SHIPING WANG UNDER 37 C.F.R. §1.132**

- I. Shiping Wang, hereby declare that:
- 1. I hold the position of Technical Consultant/Senior Engineering Specialist in the Applied Technology Center of Cardinal Health. I have held this position since 1996. In this position, I manage technical resources to develop medical operating room devices such as gloves (exam/surgical), skin prep, and non-woven laminates. In this position, I regularly study and use latex/dispersion coating formulations, skin care preparations, hot-melt formulations, and elastomer/rubber latex compounding.
- 2. I received a Doctor of Philosophy degree from the Material Science-Polymer Program at the Institute of Material Science at the University of Connecticut. My research there focused on the chemical modification of the polymer interface in multicomponent systems. I received a Master of Science degree in Polymer Chemistry and Physics from the Department of Material Science at China Textile University, and a Bachelors degree in Biochemistry from Peking University.
- 3. From 1990 to 1992, I was a Research Associate (Post-doctoral fellow) at the Emulsion Polymer Institute of Lehigh University. At Lehigh University, I

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worked on the synthesis and modification of acrylic copolymers through emulsion techniques.

- 4. From 1992 to 1994, I held the position of Senior Research Chemist in the Emulsion Polymer Laboratory of Witco Corporation. At Witco Corporation, I studied surfactant application in emulsion polymerization and their effect on latex properties.
- 5. From 1994 to 1996, I held the position of Senior Research
  Associate in the New Technology group at Dexter Corporation. At Dexter Corporation, I
  was involved in the development of emulsion/dispersion polymers and coating
  formulations for can coatings, and solvent-based industrial coating resins.
- 6. I am familiar with the skills and knowledge of one of ordinary skill in the art of biochemistry, polymer chemistry, polymer physics, material engineering, and colloidal chemistry.
- 7. I am a co-inventor of the subject matter of the above-identified patent application, and I assisted with the preparation of the application. I have reviewed the above-identified patent application, and I am familiar with its contents. I have also reviewed all the correspondence between the applicants and the United States Patent & Trademark Office ("USPTO"), and I am familiar with their contents.
- 8. Those of ordinary skill in the art of polymer chemistry at the time of the filing of the above-identified application would have understood that the term "polyisoprene latex" means a latex composition made of the polymer "polyisoprene." Those of ordinary skill in the art of polymer chemistry also understand that "polyisoprene" is a homopolymer of isoprene, prepared by polymerizing isoprene alone. This is in stark contrast to copolymers of isoprene, which are prepared by polymerizing together isoprene and at least one other monomer.
- 9. The understanding of one of ordinary skill in the art of polymer chemistry at the time of the filing of the above-identified application is further

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corroborated by the entry for "polyisoprene" found in the Aldrich Handbook of Fine Chemicals [Exhibit A], as well as the definition of "polyisoprene" found in Polymer Science Dictionary, Second Edition, Ed. Mark Alger, 1989 [Exhibit B], which reads, in relevant part:

Polyisoprene (poly-(2-methyl-1,3-butadiene))
A polymer of isoprene which can exist in any of several stereoisomeric forms.

- 10. There is no statement either in the specification or the prosecution of the above-referenced application that would suggest that any meaning other than the ordinary and accustomed meaning in the art should be attributed to the term "polyisoprene latex."
- 11. I further declare under penalty of perjury that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful statements may jeopardize the validity of the application or any patents issued thereon.

act. 24, 200/

Date

Shiping Wang

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## **Exhibit A**

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ISJERO-CS-O]  70 wt. % in proj (1:1)  by errory 152.4  418048-750Na  418048-750Na  18048-81-3]  F average M <sub>w</sub> Then fightive, res excive bence vscosity 350 pos- tinsativativa density.  0 19 713 * 225 * F 431257-200G  9 average M <sub>w</sub> + won-fughtive, res excive busiles vscosity 400 pos- tinsativativa density.  0 19 713 * 225 * F 400-fughtive, res excively 400 pos- constitution busiles to 11 * 2 * 2 * 5 * 6  431257-200G	pylene glycol met  140 15 mil.  188 gmt. 75 15 mil.  2423 5. 24.25-35  glass tit  glass tit  24,055 km (CHaXII).  38,000 by GPC, m one plasse greet me  4187 mc, Brookfiel  92 gma. 25 mil.  92 gma. 25 mil.  92 gma. 25 mil.  93 gma. 25 mil.  94 gma. 75 mil.  94 gma. 75 mil.	Sp. 40 °C (1994 °S) 250 est. 21. 250 est. 21. 250 est. 21. 250 est. 21. 250 est. 250	37.69 104.59 at rubber rapricants. 38 more * 39 10 etic rubber richtracits. 92 more transcrits.	average M., -2 Co-curshle plant viscosity 25-40 ct TSCA 459054-11 Polyteoprene gr [1:39918-75-7]  tlensty	5,000 Einer Auflagune eddi 7, 20 wh. % at edds diess tol glass tol glass tol 1,92 ghost, 75 °C or 5,000 Eurer, Auflagune aric F, 20 wt. % in toli glass tol	inde  ENU PK.  ENU PK.  12  Inde  CH.  CH.  Society (30 °C 51000 250 rst.)  11  CO.  Ch.  Ch.  Ch.  Ch.  Ch.  Ch.  Ch.	teddin
ISJERO-CS-O] 70 wt. % in proj (1:1) 54 64 64 65 151 18046-750M 18046-81-3] 161 18048-81-3] 161 18048-81-3] 161 18048-81-3] 161 18048-81-3]	pylene glycol met  140 °C m <sup>5</sup> 188 gmr. 36 °C 4242 S. 3242-35 glass 86 glass 86 glass 86 glass 86 38,000 by GPC, m time plassacret, ma 42 gma. 25 °C 40,000 by GPC, m core plassacret, m e 137 °C, Brookhel e 137 °C, Brookhel	Sp 42 °C (10% °S) 250 mt ± 1 250 mt et 1 250 mt et 2 2	37.69 104.00 all rubber rubicants. 38 mole * 39 10 65.00 etic rubber richt carls. 92 mole th. 1.521	average M., -2 Co-curshle plant viscosity 25-40 ct TSCA 459054-11 Polyteoprene gr [1:39918-75-7]  tlensty	5,000 Liver Authorizer ends glass tol	inde  ENU PK.  ENU PK.  12  Inde  CH.  CH.  Society (30 °C 51000 250 rst.)  11  CO.  Ch.  Ch.  Ch.  Ch.  Ch.  Ch.  Ch.	Strylam

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**Exhibit B** 

# Polymer Science Dictionary

Second edition

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POLYKETAL

compare of interest as replacements for rigid polyurethane forms because of their much better fire resistance. They are address by the use of a polymeric MDI,

then having values of 2-7, and a trichlorofluorothane blowing agent. The products are necessarily they crosslinked and somewhat brittle, so frequently divisocyanurate polyurethane combinations are used. Sevanurate ring-containing polymers are also profied by a side reaction when 1,2-epoxides are reacted (the disocyanates to yield poly-(2-oxazolidines). Alterdively, amide-modified PIR (using a carboxylic acid, the as a dinter acid) or carbodiimide-modified PIR by catalysing a condensation reaction of isocyanate coups) may be used to improve toughness.

hykoindoloquinazolinedione A polymer of structure:

with the sized by reaction between an aromatic diamine and an aromatic bis-(o-amino-umide) in PPA. The scalon proceeds via soluble uncyclized precursor polymers. The polymers have good thermal stability.

Mysoludolothioquinazofinome Alternative name for

hlyisoprene (poly-(2-methyl-1,3-butadiene)) A polymer isoprene which can exist in any of several stereoisoeric forms. The commonest form is ets-1,4-polyisoprene glich occurs in the latex of many trees and plants as atural rubber. Trans-1,4-polyisoprene can also be isoated from some plants as balata or gutta percha. Both These forms may also be synthesized by the use of a fcreospecific catalyst in anionic polymerization. 3,4-Polypoprene may also be synthesized and can exist in both indiotactic and isotactic forms. A further isomer is 1,2olyisoprene. In addition to these regular structures, more an one different isomer may be present in the polymer, phably when it is prepared by free radical polymerization. his generally results in poorer mechanical properties as found in the early synthetic polyisoprenes. Natural rubber probably 100% cis-1,4-structure and although synthetic 4-1,4-polymers with cir contents of more than 90% are made, the difference in properties is significant.

4 polyisoprene

in isomeric form of polyisoprene of little interest compared with the 1,4-isomers. Produced, with about 90% structures, by Ziegler-Natta polymerization using a homogeneous catalyst system consisting of aluminium triethyl and a titanium alkoxide with an Al/Ti ratio of about 6. The polymer produced does not have sufficient order at asymmetric centres to crystallize and is therefore amorphous.

poly-(isopropenylmethyl ketone) (polymethylisopropenyl ketone)

Readily produced by the free radical, cationic or anionic polymerization of isopropenylmethyl ketone. The polymer has a  $T_y$  value of about 80°C and is similar to polymethylmethacrylate in its physical properties, except that it has poor thermal and photochemical stability. Useful as a positive photoresist material.

poly-(4,4'-isopropylidenediphenylene carhonate) Alternative name for bisphenol A polycarhonate.

poly-isothianaphthalene. A polymer of structure

and therefore related to poly-(3,5-thienylene), which is a good electrical conductor when doped.

polylsoxazole A polymer containing the heterocyclic ring

in the polymer chain. Formed by 1,3-dipolar addition between a dinitrile-N-oxide and a diacetylene. Closely related polyisoxazalines containing

rings (obtained from a dinitrile-N-oxide and a diolefin) and polyisoxuzolidines containing

rings (obtained from 1,3-dipolar addition of a dinitrone to a diolefin) are also known, but only in low molecular mass form.

polyketal A polymer containing ketal units of the type ...O-CR<sub>1</sub>R<sub>2</sub>-O-R... Formed by reaction of a diol with a ketone:

$$R_1 - CO - R_2 + HO - R - OH \xrightarrow{H^+}$$
  
 $+ CR_1R_2 - O - R - O+ + H_2O$ 

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